LAW OFFICES
DENNISON, SCHULTZ & MACDONALD
SUITE 105
1727 KING STREET
ALEXANDRIA, VIRGINIA 22314-2700
703 837-9600

IN THE CLAIMS:

The following is a complete listing of claims in this application.

Claims 1-37 (canceled).

38. (currently amended) Anode assembly for use in a fused bath electrolysis aluminum production cell, comprising:

an inert anode in the shape of a ladle, with length L, and comprising a cavity, an open end comprising an opening, a wall surrounding the cavity, a closed end and at least one means for mechanically connecting the inert anode to a connection conductor;

a connection conductor comprising a connection end and means for mechanically connecting the connection conductor to the inert anode, and capable of cooperating with the means for mechanically connecting of the inert anode, so as to create a mechanical linkage between the conductor and the inert anode; and

at least one brazed metallic joint or at least one brazing material that can form a brazed metallic joint by brazing wholly or partly during use, the joint or the material being disposed directly between the conductor and the anode, at at least part of at least one anode connection surface at the open end of the inert anode, and at least part of at least one conductor connection surface at the connection end of the conductor.

39. (previously presented) Anode assembly according to claim 38, wherein the means for mechanically connecting of the anode covers part of the open end representing less than 10% of the length L of the anode.

40. (previously presented) Anode assembly according to claim 38, wherein the at least one connection surface of the anode has a total area such that current density per unit area at nominal intensity during use is between 1 and 50 A/cm^2.

41. (previously presented) Anode assembly according to claim 38, wherein the means for mechanically connecting of the conductor is adjacent to the connection end.

42. (previously presented) Anode assembly according to claim 38, wherein the means for mechanically connecting of the anode comprises at least one element selected from the group consisting of collars, annular cavities, annular grooves and annular shoulders.

43. (previously presented) Anode assembly according to claim 38, wherein the means for mechanically connecting of the conductor comprises at least one element selected from the group consisting of annular grooves, skirts and annular shoulders.

44. (previously presented) Anode assembly according to claim 38, wherein the means for mechanically connecting of the conductor and the means for mechanically connecting of the anode cooperate through at least one means selected from the group consisting of screwing, click fitting, friction, insertion and force fitting.

45. (previously presented) Anode assembly according to claim 38, additionally comprising at least one complementary assembly means for connecting the anode to the conductor.

46. (previously presented) Anode assembly according to claim 45, wherein the complementary assembly means is selected from the group consisting of clamping rings, open rings and closed rings.

47. (previously presented) Anode assembly according to claim 38, additionally comprising at least one complementary seal constructed and arranged to confine the brazed joint.

48. (previously presented) Anode assembly according to claim 47, wherein the complementary seal is selected from the group consisting of open and closed rings.

49. (previously presented) Anode assembly according to

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claim 38, wherein the brazed joint has a strength which increases during use of the assembly in an electrolytic aluminium production cell.

50. (previously presented) Anode assembly according to claim 38, wherein the brazed joint includes at least one element selected from the group consisting of aluminium, silver, copper, magnesium, manganese, titanium and zinc.

51. (previously presented) Anode assembly according to claim 38, wherein the connection conductor comprises at least one member made of a nickel based alloy and the connection end is disposed on said member.

52. (previously presented) Anode assembly according to claim 51, wherein the nickel based alloy is a UNS N06625 alloy or a UNS N06025 alloy.

53. (previously presented) Anode assembly according to claim 38, wherein the anode is an anode selected from the group consisting of anodes comprising a ceramic material, anodes comprising a metallic material and anodes comprising a cermet material.

54. (previously presented) Anode assembly according to claim 38, additionally comprising at least one resistance heating element disposed in the cavity of the anode.

55. (currently amended) Method for manufacturing an anode assembly, comprising the steps of:

supplying an inert anode in the form of a ladle, with length L, comprising a cavity, an open end comprising an opening, a wall surrounding the cavity, a closed end and at least one means for mechanically connecting the inert anode to a connection conductor;

supplying a connection conductor comprising a connection end, and at least one means for mechanically connecting the connection conductor to the inert anode capable of cooperating with the means for mechanically connecting of the anode, so as

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to create a mechanical linkage between the conductor and the anode;

supplying a brazing material capable of forming a metallic joint;

placing the brazing material at a predetermined location adjacent to at least one anode connection surface of the open end of the anode or at least one conductor connection surface of the connection end of the conductor, which connection surfaces will be connected by brazing;

assembling the conductor and the anode so as to bring the connection surfaces close to each other; and

performing a heat treatment capable of causing formation of a brazed joint directly between the connection surfaces of the conductor and the anode, by means of the brazing material.

56. (previously presented) Method according to claim 55, wherein the assembling of the conductor and the anode produces a loose assembly.

57. (previously presented) Method according to claim 55, wherein the brazing material has a composition which is modified during the heat treatment so as to increase the melting temperature up to a value greater than a maximum temperature applied to the brazed joint during use.

58. (previously presented) Method according to claim 57, wherein the composition of the brazing material is modified by evaporation of at least part of one constituent element thereof.

59. (previously presented) Method according to claim 58, wherein the constituent element is zinc or magnesium.

60. (previously presented) Method according to claim 57, wherein the brazing material has a composition which is modified by chemical reaction of at least part of one constituent element thereof with a constituent of ambient atmosphere.

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61. (previously presented) Method according to claim 60, wherein the constituent element of the brazing material is aluminum, zinc, magnesium or phosphorus.

62. (previously presented) Method according to claim 57, wherein the brazing material has a composition which is modified by exchange by diffusion, with or without an oxidation - reduction reaction, of at least one element between the brazing material and one of the connection surfaces.

63. (previously presented) Method according to claim 62, wherein at least a part of the connection surfaces is coated with a material comprising an element that can diffuse in the brazing material.

64. (previously presented) Method according to claim 63, wherein the element which can diffuse into the brazing material is nickel.

65. (previously presented) Method according to claim 62, wherein the brazing material contains at least one element that can be exchanged by at least one oxidation - reduction reaction with the inert anode.

66. (previously presented) Method according to claim 65, wherein the at least one element that can be exchanged is selected from the group consisting of magnesium, aluminium, phosphorus, titanium, zirconium, hafnium and zinc.

67. (previously presented) Method according to claim 57, wherein the brazing material is a mixture or an alloy containing at least one element selected from the group consisting of copper, silver, manganese and zinc.

68. (previously presented) Method according to claim 55, wherein said placing includes introducing at least part of the brazing material between at least part of at least one connection surface of the open end of the anode and at least part of at least one connection surface of the connection end

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of the conductor.

69. (previously presented) Method according to claim 55, wherein the conductor includes at least one reservoir, the placing step including introducing at least one brazing material into the at least one reservoir before the heat treatment, the conductor and the anode being assembled so as to leave a free space between the conductor and the anode, and the brazing material being introduced between at least part of at least one connection surface of the open end of the anode and at least part of at least one connection surface of the connection end of the conductor by flow of the brazing material during the heat treatment.

70. (previously presented) Method according to claim 55, wherein the connection surfaces are at least partly coated with a material that can be wetted by the brazing material.

71. (previously presented) Method according to claim 55, wherein the heat treatment is at least partly performed while the anode assembly is being used in an electrolytic cell.

72. (previously presented) Method according to claim 55, wherein the connection surfaces adjacent to the opening of the anode are inclined so as to prevent flow of the brazing material into the cavity during brazing and/or use of the anode assembly.

73. (previously presented) Cell for aluminum production by fused bath electrolysis, comprising at least one anode assembly according to claim 38.

74. (previously presented) Cell for aluminum production by fused bath electrolysis, comprising at least one anode assembly produced using the method according to claim 55.

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